**Draft online:** [**https://drexel-uhc.github.io/salurbal-city-selection-scrolly/**](https://drexel-uhc.github.io/salurbal-city-selection-scrolly/)

**What is a SALURBAL city?**

*SALURBAL city, sub-city, and neighborhood definition and selection*

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The SALURBAL team has developed a rigorous protocol for defining cities, sub-cities, and neighborhoods. This process allows us to study and compare urban environments and their health impacts across cities in 11 countries in Latin America: Argentina, Brazil, Chile, Colombia, Costa Rica, El Salvador, Guatemala, Mexico, Nicaragua, Panama, and Peru.

We took several steps to identify and define SALURBAL cities. The approach described below has guided the definition of geographic areas to which all SALURBAL data is linked. You can read more about this process in [“Building a Data Platform for Cross-Country Urban Health Studies.”](https://link.springer.com/article/10.1007/s11524-018-00326-0)

**Step 1. Identifying cities with a population of 100,000 or more.**

The SALURBAL city universe was defined as all urban agglomerations with at least 100,000 residents as of 2010.

We used the [Atlas of Urban Expansion](http://atlasofurbanexpansion.org/) and country census data from [citypopulation.de](https://citypopulation.de/) to obtain a list of all cities (as defined in these sources) with 100,000 residents or more in 2010. We combined both lists and eliminated overlaps. Cities that were very close together and were therefore part of the same urban agglomeration were combined. The name of the largest city or a hyphenated name was assigned to that unit. SALURBAL team members in each country helped create a final list of 371 cities. We will refer to these as “SALURBAL cities.”

**Step 2: Defining the geographic boundaries of each city.**

We operationalized - or geographically defined - each SALURBAL city using existing administrative units to which health and other data could be easily linked. These administrative units included municipios, departamentos, or similar units in each country.

We’ll use São Paulo, Brazil as an example.

These are the **administrative units** (muncipalidade) in São Paulo, Brazil.

Through visual inspection of satellite imagery, we identified **all administrative units that included any portion of the built-up area** of each SALURBAL city.

The combination of these **administrative units** is considered a **SALURBAL city.**

In cases where the **administrative units** that compose a city are very large, a **SALURBAL city** may include some areas that are **not built-up or urbanized.** This is because any administrative unit that included even a small portion of the built-up area was included in the geographic definition of the city.

The example shown here is Monterrey, Mexico with a population of around 5 million residents.

It is important to note that **SALURBAL cities** may not coincide with **political boundaries or definitions** that may be more familiar to public officials and local residents. Our boundaries intentionally reflect urban agglomerations that often extend beyond city cores. This is the case for São Paulo, Brazil.

While some cities are composed of many of these units, nearly half of **SALURBAL cities** include only one **administrative unit**.

The example shown here is Rio Cuarto, Argentina with a population of around 270,000 residents.

### **Step 3. Creating a hierarchy of geographic units within each SALURBAL city**

In order to capture within-city differences and accommodate data available for different geographic levels, we defined units at multiple geographic “levels”.

Each SALURBAL city is referred to as a Level 1 unit (L1). Administrative units that compose each city (as described in step 2) are referred to Level 2 units (L2). We also defined smaller geographic units, which are similar to neighborhoods nested within each L2. These are referred to as Level 3 units (L3s).

In countries where L3s were not always defined, SALURBAL created L3 proxies by combining other available geographic units. When L3s were too small for our research purposes, neighborhoods were proxied using slightly larger units. We refer to these as Level 2.5 units (L2.5s).

Let’s go back to São Paulo to see how these different geographic levels apply to a real city.

**Level 1: “Cities”**

The SALURBAL **Level 1** for São Paulo encompasses all administrative units or muncipalidade that have any overlap with the visually apparent built-up urban area in and around the core city of São Paulo.

**Level 2: "Sub-cities"**

Within the São Paulo SALURBAL city **(São Paulo L1)**, we defined sub-city units as each of the muncipalidade that compose the São Paulo urban agglomeration. These are **L2s**.

**Level 3: "Neighborhoods"**

**Level 3 units or neighborhoods** are the smallest administrative units for which census data is available in each country.

**Level 3: "Neighborhoods"**

As shown here, each **L3 unit** in a Brazilian city like São Paulo corresponds to a setor censitario.

These **L3 units** were too small to support meaningful neighborhood-level analysis. To address this issue, we used larger Brazil census geographic units and labeled them **L2.5's**.

The SALURBAL hierarchy of geographic units for for Sao Paulo, Brazil consists of 621 **L2.5 neighborhood units**, within 31 **L2 sub-city units**, within a single **L1 city unit**.

## Understanding inter- and intra-city differences

This process was repeated for all 371 cities included in the SALURBAL project. The result is an unprecedented data resource that allows us to document and compare differences in health and wellbeing both between and within cities across Latin America.

For more information on the specific units used in each SALURBAL country, see our article in the [Journal of Urban Health](https://link.springer.com/article/10.1007/s11524-018-00326-0).

For more details and access to these boundaries please see our [spatial data repository](https://data.lacurbanhealth.org/) on the [SALURBAL data portal](https://data.lacurbanhealth.org/).